

Claims

1. Method of servicing the outer components of a wind turbine such as the wind turbine blades and the tower with a work platform, said method comprises the steps of:
- 5 positioning the work platform at the wind turbine tower,
- connecting the work platform to an upper part of the wind turbine with at least one cable,
- 10 raising the work platform with the cable and cable winding means to a position of use, and
- 15 holding the work platform to the side of the wind turbine tower with holding means.
2. Method according to claim 1, wherein said holding is established with at least two sets of suction or vacuum cups.
- 20 3. Method according to claim 1, wherein said holding is established with at least two sets of electromagnetic means.
4. Method according to claim 1, wherein said holding is established with retaining means surrounding said wind turbine tower.
- 25 5. Method according to claim 2 or 3, wherein said holding is enhanced by positioning said suction or vacuum cups or electro magnetic means on the ends of holding arms, said arms gripping around the exterior of the wind turbine tower.
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6. Method according to any of the claims 1 to 5, wherein said method further comprises the step of moving the work platform horizontally by extracting or retracting horizontal forcing means of the work platform.
- 5 7. Method according to claim 6, wherein the extracting or retracting is established telescopically by a number of arm sections in said horizontal forcing means.
8. Method according to any of the claims 1 to 7, wherein cable guiding means angles the cable outwards in relation to the wind turbine tower from the starting
10 point of the cable.
9. Method according to any of the claims 1 to 8, wherein said work platform is moved up or down by following and rolling with steering wheels of the platform on the surface of the wind turbine tower.
- 15 10. Work platform (6) for servicing the outer components of a wind turbine such as the wind turbine blades (5) and the wind turbine tower (2), said platform comprising
- 20 at least one cable (7, 7a, 7b, 7c) connecting the work platform with an upper part of the wind turbine,
- cable winding means (43, 44) winding said at least one cable,
- 25 c h a r a c t e r i s e d i n t h a t
- said platform further comprises gripping means (8) for holding the work platform (6) to the tower (2).

11. Work platform according to claim 10, c h a r a c t e r i s e d i n t h a t
said at least one cable (7) comprises a number of outer cables (7a, 7b), said set
including a main cable (7a) and one or more additional cables (7b).
- 5 12. Work platform according to claim 10 or 11, c h a r a c t e r i s e d i n
t h a t said at least one cable (7) further comprises an inner cable or cables
(7c).
- 10 13. Work platform according to claim 11 or 12, c h a r a c t e r i s e d i n
t h a t said inner and outer cables (7a, 7b, 7c) are fixed to the underside of the
wind turbine nacelle (3) at an inner and outer anchorage point (45) in direction
from the tower or to anchorage points inside the nacelle.
- 15 14. Work platform according to any of the claims 10 to 13,
c h a r a c t e r i s e d i n t h a t said gripping means (8) comprises at
least two sets of suction or vacuum cups (15a, 15b).
- 20 15. Work platform according to any of the claims 10 to 13,
c h a r a c t e r i s e d i n t h a t said gripping means (8) comprises at
least two sets of electromagnetic means.
- 25 16. Work platform according to any of the claims 10 to 13,
c h a r a c t e r i s e d i n t h a t said gripping means (8) comprises
retaining means surrounding the wind turbine tower such as at least one retaining
belt.
- 30 17. Work platform according to claim 14 or 15, c h a r a c t e r i s e d i n
t h a t each of said at least two sets of suction or vacuum cups (15a, 15b) or
electromagnetic means are flexibly mounted to the end of a holding arm (19a,
20a, 21a; 19b, 20b, 21b respectively).

18. Work platform according to claim 17, c h a r a c t e r i s e d i n t h a t said holding arm includes a base arm section (21a, 21b), inner arm section (20a, 20b) and outer arm section (19a, 19b).
- 5 19. Work platform according to claim 18, c h a r a c t e r i s e d i n t h a t said inner arm section (20a, 20b) and outer arm section (19a, 19b) are pivotally connected and controlled by arm actuating means (22a, 22b) in at least one direction.
- 10 20. Work platform according to any of the claims 10 to 19, c h a r a c t e r i s e d i n t h a t said gripping means (8) comprises one or more steering wheels (14, 14a, 14b).
- 15 21. Work platform according to any of the claims 10 to 20, c h a r a c t e r i s e d i n t h a t guard rails (13) and a foundation (18) define a work area of said platform.
- 20 22. Work platform according to any of the claims 10 to 21, c h a r a c t e r i s e d i n t h a t said gripping means (8) and the foundation (18) are connected through horizontal forcing means (23).
- 25 23. Work platform according to any of the claims 10 to 22, c h a r a c t e r i s e d i n t h a t said horizontal forcing means (23) includes a number of horizontal forcing arms (23a, 23b).
- 30 24. Work platform according to any of the claims 10 to 23, c h a r a c t e r i s e d i n t h a t said horizontal forcing arms (23a, 23b) are integrated into each other as part of telescopic forcing means.
- 25 25. Work platform according to any of the claims 10 to 24, c h a r a c t e r i s e d i n t h a t the side or sides of said platform

includes one or more indentations (11, 11a, 11b) for receiving and docking one or more wind turbine blades (5).

- 5 26. Work platform according to any of the claims 10 to 25, characterised in that said platform includes retaining means (16a, 17a; 16b, 17b) for retaining the wind turbine blade (5) in one of said indentations (11, 11a, 11b).
- 10 27. Work platform according to claim 26, characterised in that said retaining means (16a, 17a; 16b, 17b) includes one or more suction or vacuum cups (16a, 16b) positioned on one or more rods as base part (17a, 17b) for the retaining means.
- 15 28. Work platform according to any of the claims 10 to 27, characterised in that said at least one cable (7, 7a, 7b, 7c) is controlled by cable guiding means (12) e.g. by one or more cable guidance wheels in said means.
- 20 29. Work platform according to any of the claims 10 to 28, characterised in that the position of said cable guiding means (12) controls the angling of the at least one cable (7, 7a, 7b, 7c).
- 25 30. Work platform according to any of the claims 10 to 29, characterised in that said cable guiding means (12) angles the cable outwards in relation to the wind turbine tower from the anchorage point of the cable e.g. in the event in which the horizontal forcing means is fully retracted.
- 30 31. Work platform according to any of the claims 10 to 30, characterised in that said platform includes control means (40), said means at least controls said arm actuating means (22a, 22b), horizontal

forcing means (23), said one or more suction or vacuum pumps (39) and/or said cable winding means (43, 44).

32. Work platform according to claim 31, c h a r a c t e r i s e d i n t h a t
5 said control means (40) is connected wired or wirelessly to and controlled by at least one remote control (42).

33. Work platform according to claim 31 or 32, c h a r a c t e r i s e d i n
t h a t said control means (40) and auxiliary devices are controlled with more
10 than one remote control, said controls work in a master and slave configuration.